

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Divide County, North Dakota

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed. The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (USDA, 1999) and "Keys to Soil Taxonomy" (USDA, 1998) and in the "Soil Survey Manual" (USDA, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units in the Hydric Soil Interpretations table meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1996).

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

These map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
674: FARNUF LOAM, 0 TO 3 PERCENT SLOPES	FARNUF	No	flat	---	---	---	---
676: FARNUF-SAKAKAWEA LOAMS, 3 TO 6 PERCENT SLOPES	FARNUF	No	flat	---	---	---	---
	SAKAKAWEA	No	rise	---	---	---	---
882: HAMERLY-TONKA COMPLEX, 0 TO 3 PERCENT SLOPES	HAMERLY	No	rise	---	---	---	---
	TONKA	Yes	depression	3,2B3	YES	NO	YES
975: HEIL SILT LOAM, 0 TO 1 PERCENT SLOPES	HEIL	Yes	depression	2B3,3	YES	NO	YES
1267: MARYSLAND LOAM, 0 TO 1 PERCENT SLOPES	MARYSLAND	Yes	channel, swale	2B3	YES	NO	NO
1309: MIRANDA-ZAHL LOAMS, 3 TO 25 PERCENT SLOPES	MIRANDA	No	knoll, ridge	---	---	---	---
	ZAHL	No	knoll, ridge, till plain	---	---	---	---
1427: PARNELL SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES	PARNELL	Yes	depression, moraine	3,2B3	YES	NO	YES
1466: PITS, GRAVEL AND SAND	PITS, GRAVEL AND SAND	No	terrace	---	---	---	---
1599: SALT FLATS	SALT FLATS	Yes	depression	3,2B3	YES	NO	YES
1709: SOUTHAM SILT LOAM, 0 TO 1 PERCENT SLOPES	SOUTHAM	Yes	depression	3,2B3	YES	NO	YES
1739: STRAW LOAM, 0 TO 3 PERCENT SLOPES	STRAW	No	flood plain	---	---	---	---
1835: TONKA SILT LOAM, 0 TO 1 PERCENT SLOPES	TONKA	Yes	depression	3,2B3	YES	NO	YES
1871: VALLERS LOAM, SALINE, 0 TO 1 PERCENT SLOPES	VALLERS, SALINE	Yes	flat	2B3	YES	NO	NO
1883: VALLERS-PARNELL COMPLEX, 0 TO 1 PERCENT SLOPES	VALLERS	Yes	flat	2B3	YES	NO	NO
	PARNELL	Yes	depression	2B3,3	YES	NO	YES
1978: WATER	WATER	Yes	depression	3,2B3	YES	NO	YES
2014: WILLIAMS-BOWBELLS LOAMS, 0 TO 3 PERCENT SLOPES	WILLIAMS	No	rise	---	---	---	---
	BOWBELLS	No	swale	---	---	---	---
2023: WILLIAMS-NIOBELL LOAMS, 0 TO 3 PERCENT SLOPES	WILLIAMS	No	flat	---	---	---	---
	NIOBELL	No	swale, till plain	---	---	---	---

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				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
2024: WILLIAMS-NIOBELL LOAMS, 3 TO 6 PERCENT SLOPES	WILLIAMS	No	rise	---	---	---	---
	NIOBELL	No	swale	---	---	---	---
2031: WILLIAMS-ZAHL LOAMS, 3 TO 6 PERCENT SLOPES	WILLIAMS	No	rise	---	---	---	---
	ZAHL	No	knoll, ridge	---	---	---	---
2081: ZAHL-WILLIAMS LOAMS, 9 TO 15 PERCENT SLOPES	ZAHL	No	knoll, ridge	---	---	---	---
	WILLIAMS	No	knoll, ridge	---	---	---	---
2130: WILLIAMS-ZAHL-PARNELL COMPLEX, 0 TO 9 PERCENT SLOPES	WILLIAMS	No	knoll, ridge	---	---	---	---
	ZAHL PARNELL	No Yes	knoll, ridge depression	--- 3,2B3	--- YES	--- NO	--- YES
2131: ZAHL-WILLIAMS-PARNELL COMPLEX, 0 TO 35 PERCENT SLOPES	ZAHL	No	knoll, ridge, till plain	---	---	---	---
	WILLIAMS PARNELL	No Yes	knoll, ridge depression	--- 3,2B3	--- YES	--- NO	--- YES
2169: HARRIET, REGAN, AND STIRUM SOILS, 0 TO 1 PERCENT SLOPES	HARRIET	Yes	drainageway, flood plain	2B3	YES	NO	NO
	REGAN STIRUM	Yes Yes	drainageway drainageway, flood plain	2B3,3 2B3	YES YES	NO NO	YES NO
2170: DIVIDE LOAM, 0 TO 3 PERCENT SLOPES	DIVIDE	No	drainageway, flat, terrace	---	---	---	---
2171: SAKAKAWEA-FARNUF LOAMS, 6 TO 9 PERCENT SLOPES	SAKAKAWEA	No	knoll, rise	---	---	---	---
	FARNUF	No	flat	---	---	---	---
2172: SAKAKAWEA-FARNUF LOAMS, 9 TO 25 PERCENT SLOPES	SAKAKAWEA	No	knoll	---	---	---	---
	FARNUF	No	knoll	---	---	---	---
2173: MARIAS SILTY CLAY, 0 TO 3 PERCENT SLOPES	MARIAS	No	flat	---	---	---	---
2174: MARIAS SILTY CLAY, 3 TO 6 PERCENT SLOPES	MARIAS	No	rise	---	---	---	---
2175: ZAHL-WILLIAMS LOAMS, 6 TO 9 PERCENT SLOPES	ZAHL	No	knoll, ridge	---	---	---	---
	WILLIAMS	No	knoll, ridge	---	---	---	---
2176: ZAHL-WILLIAMS LOAMS, 15 TO 60 PERCENT SLOPES	ZAHL	No	ridge	---	---	---	---
	WILLIAMS	No	ridge	---	---	---	---

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2177: ZAHl-WILLIAMS-VALLERS LOAMS, 0 TO 60 PERCENT SLOPES	ZAHl	No	ridge	---	---	---	---
	WILLIAMS VALLERS	No Yes	ridge flat	2B3	---	---	---
2178: FARNUF-ALKABO SILT LOAMS, 0 TO 3 PERCENT SLOPES	FARNUF	No	flat	---	---	---	---
	ALKABO	No	rise	---	---	---	---
2179: NOONAN-NIOBELL LOAMS, 1 TO 6 PERCENT SLOPES	NOONAN	No	swale	---	---	---	---
	NIOBELL	No	swale	---	---	---	---
2181: MIRANDA-NOONAN LOAMS, 0 TO 3 PERCENT SLOPES	MIRANDA	No	flat	---	---	---	---
	NOONAN	No	flat	---	---	---	---
2182: PORTAL-LIHEN FINE SANDY LOAMS, 0 TO 3 PERCENT SLOPES	PORTAL	No	flat, terrace	---	---	---	---
	LIHEN	No	rise, terrace	---	---	---	---
2183: LIHEN-BLANCHARD LOAMY FINE SANDS, 1 TO 6 PERCENT SLOPES	LIHEN	No	flat, terrace	---	---	---	---
	BLANCHARD	No	rise, terrace	---	---	---	---
2186: LEHR-WABEK LOAMS, 1 TO 3 PERCENT SLOPES	LEHR	No	rise, terrace	---	---	---	---
	WABEK	No	rise, terrace	---	---	---	---
2187: APPAM-WABEK COMPLEX, 1 TO 6 PERCENT SLOPES	APPAM	No	flat, terrace	---	---	---	---
	WABEK	No	rise, terrace	---	---	---	---
2188: WABEK-LEHR COMPLEX, 1 TO 6 PERCENT SLOPES	WABEK	No	rise, terrace	---	---	---	---
	LEHR	No	flat, terrace	---	---	---	---
2189: WABEK-APPAM COMPLEX, 6 TO 35 PERCENT SLOPES	WABEK	No	knoll, ridge	---	---	---	---
	APPAM	No	swale	---	---	---	---
2193: DUMPS, MINE- USTORTHENTS COMPLEX, 0 TO 75 PERCENT SLOPES	DUMPS, MINE	No	depression	---	---	---	---
	USTORTHENTS	No	ridge	---	---	---	---
2276: APPAM-WABEK COMPLEX, 6 TO 15 PERCENT SLOPES	APPAM	No	swale, terrace	---	---	---	---
	WABEK	No	ridge, terrace	---	---	---	---
2277: DOOLEY SANDY LOAM, 1 TO 3 PERCENT SLOPES	DOOLEY	No	flat, rise	---	---	---	---
2278: DOOLEY-ZAHl COMPLEX, 3 TO 6 PERCENT SLOPES	DOOLEY	No	rise	---	---	---	---
	ZAHl	No	knoll, ridge	---	---	---	---

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2279: ZAHL-DOOLEY COMPLEX, 6 TO 9 PERCENT SLOPES	ZAHL	No	knoll, ridge	---	---	---	---
	DOOLEY	No	knoll, ridge	---	---	---	---
2280: DOOLEY-LIHEN-ZAHL COMPLEX, 9 TO 15 PERCENT SLOPES	DOOLEY	No	knoll, stream terrace	---	---	---	---
	LIHEN	No	flat, stream terrace	---	---	---	---
	ZAHL	No	knoll, stream terrace	---	---	---	---
2281: KREM LOAMY SAND, 1 TO 6 PERCENT SLOPES	KREM	No	rise	---	---	---	---
2282: NOONAN-NIOBELL-TONKA COMPLEX, 0 TO 3 PERCENT SLOPES	NOONAN	No	flat	---	---	---	---
	NIOBELL TONKA	No Yes	rise depression	2B3, 3	YES	NO	YES
2283: NIOBELL-NOONAN-TONKA COMPLEX, 0 TO 6 PERCENT SLOPES	NIOBELL	No	rise	---	---	---	---
	NOONAN TONKA	No Yes	flat, swale depression	3, 2B3	YES	NO	YES
2284: PARSHALL-TALLY FINE SANDY LOAMS, 0 TO 6 PERCENT SLOPES	PARSHALL	No	swale	---	---	---	---
	TALLY	No	alluvial fan	---	---	---	---
2285: WABEK-WILLIAMS COMPLEX, 3 TO 9 PERCENT SLOPES	WABEK	No	knoll	---	---	---	---
	WILLIAMS	No	knoll	---	---	---	---

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FOOTNOTE: There may be small areas of included soils or miscellaneous areas that are significant to use and management of the soil; yet are too small to delineate on the soil map at the map's original scale. These may be designated as spot symbols and are defined in the published Soil Survey Report or the USDA-NRCS Technical Guide, Part II. Areas mapped as water or any map unit that contains one of the following conventional symbols is considered a hydric soil map unit: marshes or swamps; wet spots; depressions; streams, lakes and ponds.

1. All Histosols except Folists, or
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Aquisalids, Pachic subgroups, or Cumulic subgroups that are:
 - a. Somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or
 - b. poorly drained or very poorly drained and have either:
 - (1) water table equal to 0.0 ft during the growing season if textures are coarse sand, sand, or fine sand in all layers within 20 inches (in),
or for other soils
 - (2) water table at less than or equal to 0.5 ft from the surface during the growing season if permeability is equal to or greater than 6.0 in/hour (h) in all layers within 20 in, or
 - (3) water table at less than or equal to 1.0 ft from the surface during the growing season if permeability is less than 6.0 in/h in any layer within 20 in, or
3. Soils that are frequently ponded for long duration or very long duration during the growing season, or
4. Soils that are frequently flooded for long duration or very long duration during the growing season.

